

REGARDING PRELIMINARY AMENDMENT
IDENTIFYING ARTICLE 34 AMENDMENTS
U.S. Application No.: 10/551,645

AMENDMENTS TO THE SPECIFICATION

Please replace the present Title with the following amended title:

INTERNAL ENGINE PISTON AND ITS PRODUCTION METHOD

Please replace the first full paragraph on page 12 with the following rewritten paragraph:

C forms eutectic carbides, lowers a solidification temperature, and improves the castability of a melt, namely improves the flowability of a melt during casting, etc. The last effect is extremely important when a thin piston is cast. However, when C exceeds 0.8%, an area ratio of the eutectic carbides crystallized becomes as much as more than 35%, and precipitated carbides of Cr, etc. increase, rather decreasing seizure resistance and ductility and increasing attackability to a mating member. Accordingly, C is 0.8% or less. The C content is preferably 0.1-0.55% ~~0-6%~~, more preferably 0.3-0.55%.

Please replace the second full paragraph on page 25 with the following rewritten paragraph:

The reciprocal kinetic friction wear test was conducted by the following procedure. Each sample was first worked to a planar test piece 71 of 60 mm x 20 mm x 5 mm, and ground to an average surface roughness Ra (JIS B 0601) of 0.1-0.2 μm . As shown in Fig. 7, each planar test piece 71 was attached to a reciprocal kinetic friction detector (AFT-15M available from ORIENTEC Co., Ltd.), which is not shown. Lubricating oil (corresponding to 10W-30) was dropped onto the planar test piece 71 in a direction shown by an arrow 76. With a ball 72 of 5

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mm ~~mm~~ in diameter made of high-carbon chromium bearing steel SUJ2 (JIS G 4805), which corresponded to the piston pin as a mating member, in contact with the planar test piece 71 at a thrust load 75 of 58.8 N, the planar test piece 71 was reciprocally slid in a direction shown by an arrow 74 at a sliding width of 1 cm and a reciprocal period of 1.6 seconds, to measure a wearing force. The number of reciprocal sliding (hereinafter referred to as "number of wear") was counted until the wearing force reached 6.86 N, and the seizure resistance to a pin was evaluated by the following standards:

Please replace Table 2 on page 28 with the following new Table 2:

No. ⁽¹⁾	Eutectic Carbides		Number of Eutectic Colonies ⁽³⁾ (/mm ²)	Seizure Resistance to Pin		Seizure Resistance to Liner	
	Area Ratio (%)	D _{av} ⁽²⁾ (μm)		Number of Wear	Evaluation	Seizure Load (kgf)	Evaluation
Example 1	0.1	0.1	3	300	Good	101	Good
Example 2	0.2	0.2	3	305	Good	105	Good
Example 3	0.3	0.3	3	310	Good	110	Good
Example 4	6	1.6	30	521	Excellent	125	Excellent
Example 5	10.0	1.7	26	530	Excellent	130	Excellent
Example 6	15.0	2.0	12	510	Excellent	120	Excellent
Example 7	1.0	0.9	8	318	Good	115	Good
Example 8	1.4	1.0	12	350	Good	119	Good
Example 9	6.1	1.7	40	470	Excellent	150	Excellent
Example 10	4.7	1.7	35	471	Excellent	140	Excellent
Example 11	5.4	1.7	38	450	Excellent	140	Excellent
Example 12	1.7	1.1	10	330	Good	130	<u>Excellent</u> Good
Example 13	1.0	0.8	10	340	Good	110	Good

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Example 14	0.7	0.8	5	385	Good	125	Excellent
Example 15	4.5	1.6	34	420	Excellent	125	Excellent
Example 16	4.8	1.8	32	450	Excellent	130	Excellent
Example 17	1.1	1.1	10	370	Good	125	<u>Excellent</u> Good
Example 18	1.0	1.0	17	388	Good	120	Excellent Good
Example 19	4.1	1.3	32	411	Excellent	135	Excellent
Example 20	4.3	1.6	30	421	Excellent	137	Excellent
Comp. Ex. 1	0.0	-	-	253	Fair	98	Fair
Comp. Ex. 2	11.0	1.90	20	452	Excellent	120	Excellent
Comp. Ex. 3	0.0	-	-	267	Fair	89	Fair
Comp. Ex. 4	0	-	-	263	Fair	100	<u>Good</u> Fair
Conv. Ex. 1	0.0	-	-	289	Fair	102	<u>Good</u> Fair
Conv. Ex. 2	0.0	-	-	254	Fair	100	<u>Good</u> Fair

Please replace Table 4 on page 35 with the following new Table 4:

No. ⁽¹⁾	Young's Modulus (GPa) at			Thermal Cracking Resistance		Average Linear Thermal Expansion Coefficient Between Room Temperature and 500°C (x 10 ⁻⁶ /°C)
	350°C	450°C	500°C	Maximum Crack Length (μm)	Evaluation	
Example 1	194	177	161	90	Good	12.9
Example 2	193	173	160	94	Good	12.8
Example 3	195	176	160	87	Good	12.4
Example 4	192	175	158	80	Excellent	12.5
Example 5	191	176	158	80	Excellent	12.1

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Example 6	193	177	157	88	Good	12.2
Example 7	194	171	153	95	Good	11.8
Example 8	196	172	153	94	Good	11.9
Example 9	197	173	155	55	Excellent	12.1
Example 10	197	164	157	51	Excellent	12.5
Example 11	198	168	156	47	Excellent	12.4
Example 12	197	168	158	50	Excellent	11.9
Example 13	199	173	154	90	Good	12.6
Example 14	195	173	155	89	Good	12.8
Example 15	194	172	155	87	Good	12.6
Example 16	193	168	154	98	Good	12.4
Example 17	198	171	155	49	Excellent	12.4
Example 18	195	174	157	60	Excellent	12.2
Example 19	195	168	155	46	Excellent	12.0
Example 20	195	168	155	46	Excellent	12.0
Comp. Ex. 1	194	174	152	117	Fair	12.1
Comp. Ex. 2	197	174	155	100	Good Fair	12.6
Comp. Ex. 3	194	171	151	178	Poor	12.6
Comp. Ex. 4	195	176	148	156	Poor	12.6
Conv. Ex. 1	175	160	135	325	Poor	13.1
Conv. Ex. 2	194	174	155	121	Fair	14.0

Please replace the first full paragraph on page 36 with the following rewritten paragraph:

With respect to high-temperature rigidity, Examples 1-20 were substantially the same as Comparative Examples 1-4 and Conventional Examples 1 and 2. However, with respect to the

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thermal cracking resistance, the maximum crack length was 100 μm or more exceeded 100 μm in Comparative Examples 1-4 and Conventional Examples 1 and 2, but it was less than 100 μm in Examples 1-20.

Please replace Table 8 at page 46 with the following new Table 8:

No. ⁽¹⁾	Young's Modulus (GPa)			Thermal Cracking Resistance		α ⁽²⁾ ($\times 10^{-6}/^{\circ}\text{C}$)
	350°C	450°C	500°C	Maximum Crack Length (μm)	Evaluation	
Example 21	197	177	161	98	Good	12.1
Example 22	198	178	163	95	Good	12.5
Example 23	199	177	162	90	Good	12.2
Example 24	197	177	155	78	Good	12.3
Example 25	197	176	154	47	Excellent	12.3
Example 26	196	177	156	44	Excellent	12.2
Example 27	196	176	159	54	Good	12.1
Example 28	197	172	159	87	Good	12.1
Example 29	195	182	161	33	Excellent	12.1
Example 30	197	184	151	62	Good	11.9
Example 31	197	184	151	62	Good	11.9
Example 32	194	170	153	48	Excellent	12.0
Example 33	196	171	152	97	Good	12.1
Example 34	191	176	163	27	Excellent	12.1
Example 35	196	177	156	40	Excellent	12.1
Example 36	190	178	155	42	Excellent	12.5
Example 37	190	175	161	80	Good Excellent	12.4
Example 38	190	177	156	31	Excellent	11.8
Example 39	195	170	155	20	Excellent	11.6
Example 40	193	177	155	54	Good	12.5
Example 41	193	175	165	26	Excellent	12.6
Example 42	190	178	158	44	Excellent	11.5
Example 43	195	176	155	41	Excellent	12.2
Example 44	192	176	156	42	Excellent	12.3
Example 45	191	177	157	50	Excellent	12.1
Comp. Ex. 5	195	182	161	35	Excellent	12.1
Comp. Ex. 6*	169	158	138	162	Poor	11.5
Comp. Ex. 7	171	155	136	179	Poor	12.5
Comp. Ex. 8	169	158	138	162	Poor	11.5

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Comp. Ex. 9*	162	154	132	110	Fair	18
Comp. Ex. 10*	164	156	135	122	Fair	17.2
Comp. Ex. 11	193	171	150	168	Poor	12.4
Comp. Ex. 12*	194	171	149	150	Fair	12.2